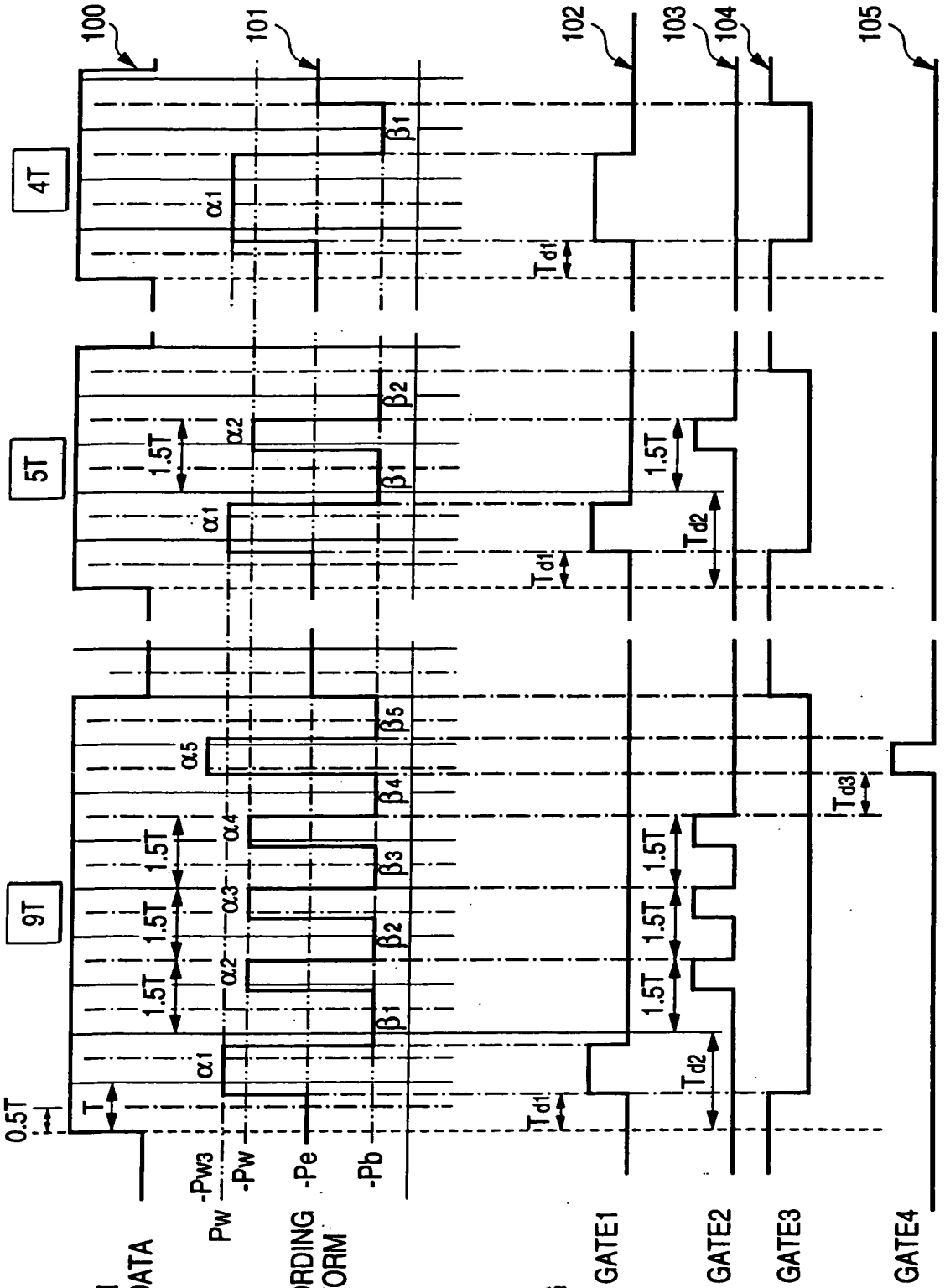



FIG. 1 (a) MARK-LENGTH MODULATED DATA

FIG. 1 (b) DIVIDED RECORDING PULSE WAVEFORM

FIG. 1 (c) CLOCK TIMING

FIG. 2 (a)

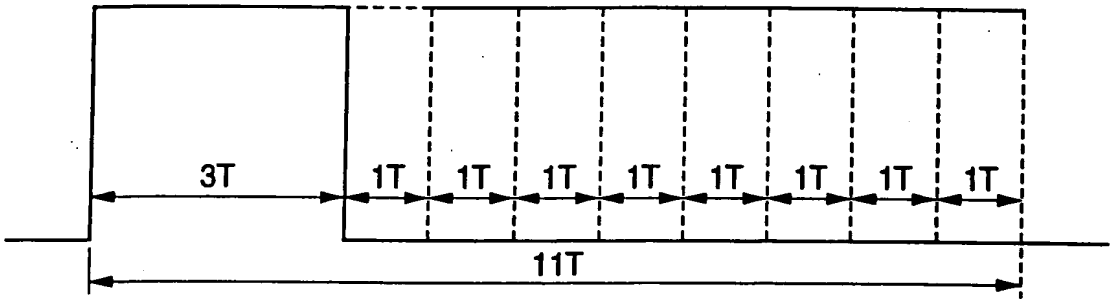

3T
1T
1T
1T
1T
1T
1T
1T
1T
11T

FIG. 2 (b)

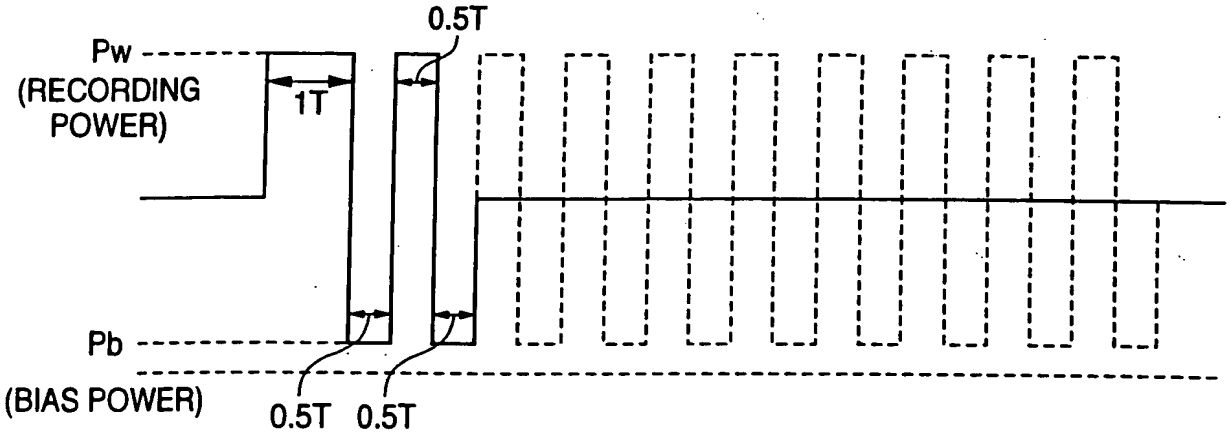

0.5T
Pw
(RECORDING
POWER)
1T
Pb
(BIAS POWER)
0.5T
0.5T

FIG. 3 (a)

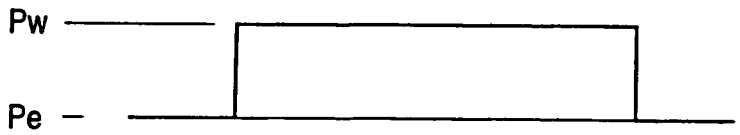



FIG. 3 (b)

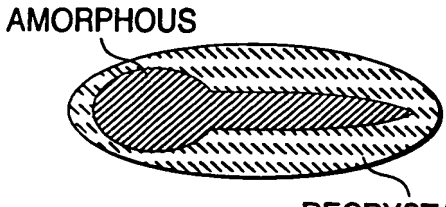



FIG. 3 (c)

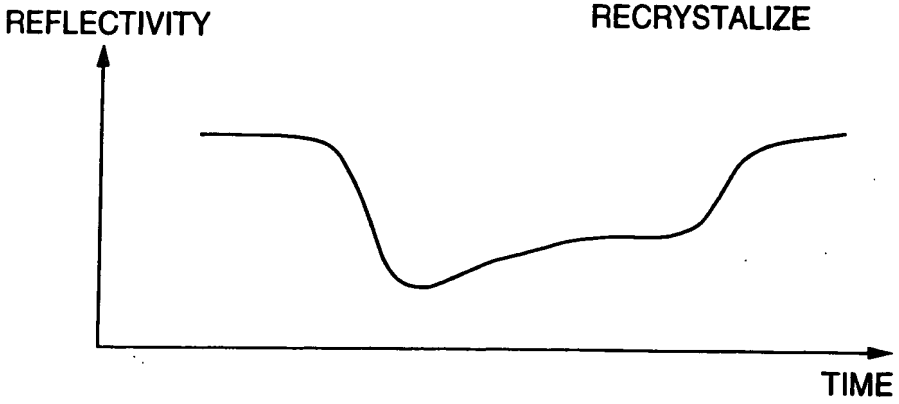



FIG. 3 (d)

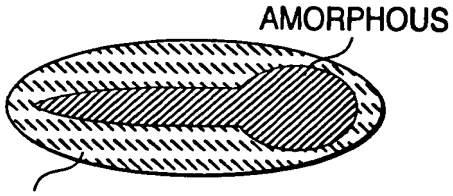



FIG. 3 (e)

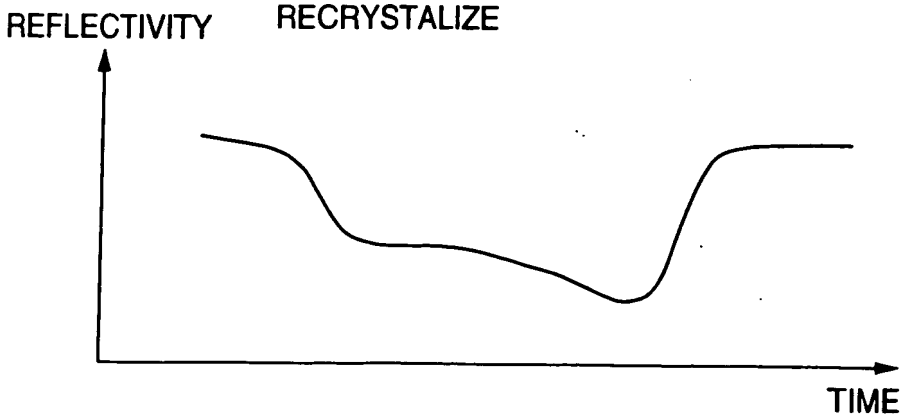


FIG. 4 (a)

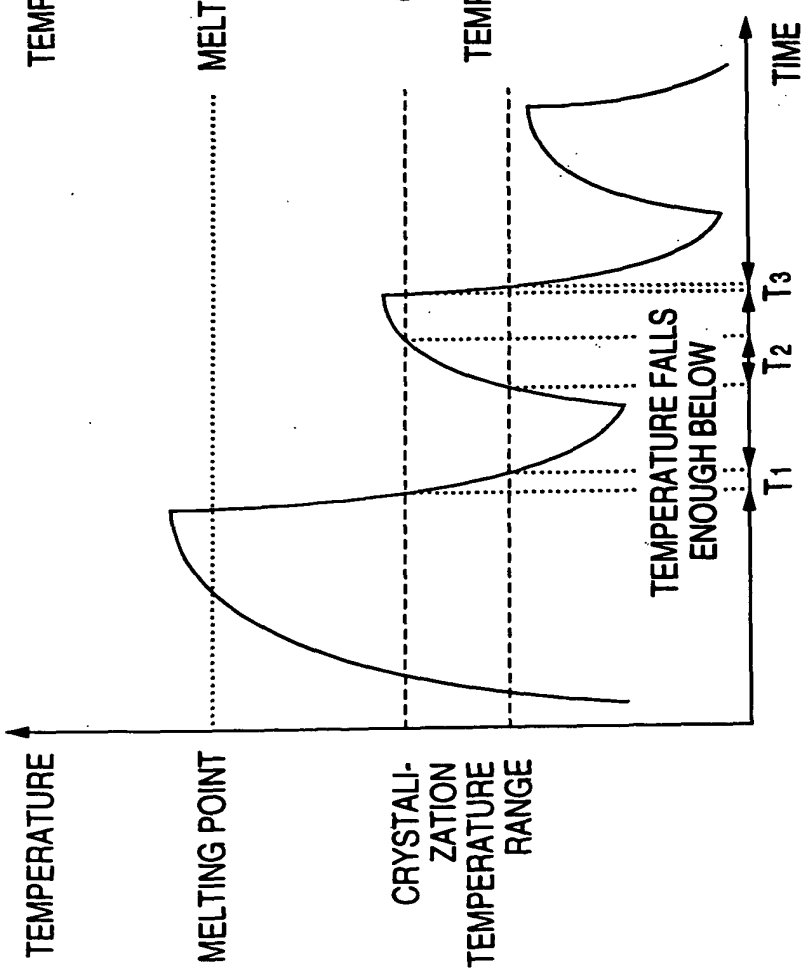

LOW LINEAR VELOCITY
TEMPERATURE
MELTING POINT
CRYSTALI-
ZATION
TEMPERATURE
RANGE
TEMPERATURE FALLS
ENOUGH BELOW
T1
T2
T3
TIME

FIG. 4 (b)

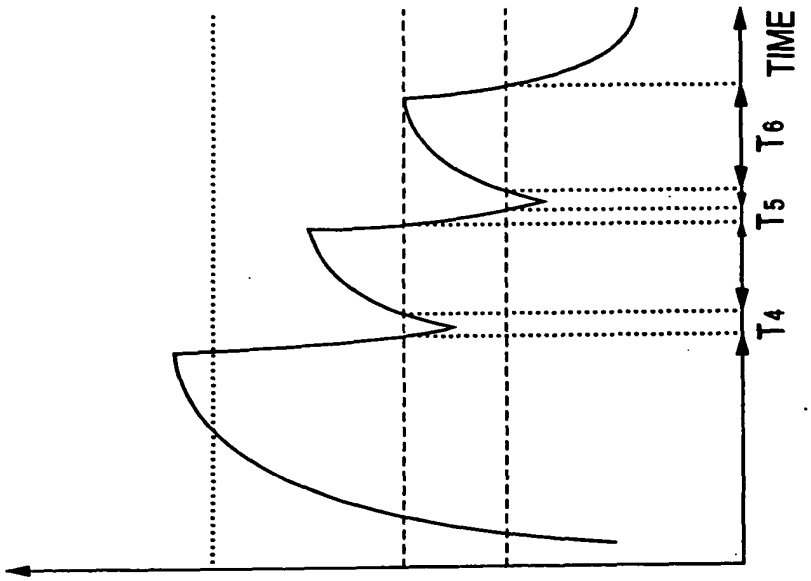

HIGH LINEAR VELOCITY
TEMPERATURE
MELTING POINT
CRYSTALI-
ZATION
TEMPERATURE
RANGE
T4
T5
T6
TIME

FIG. 5

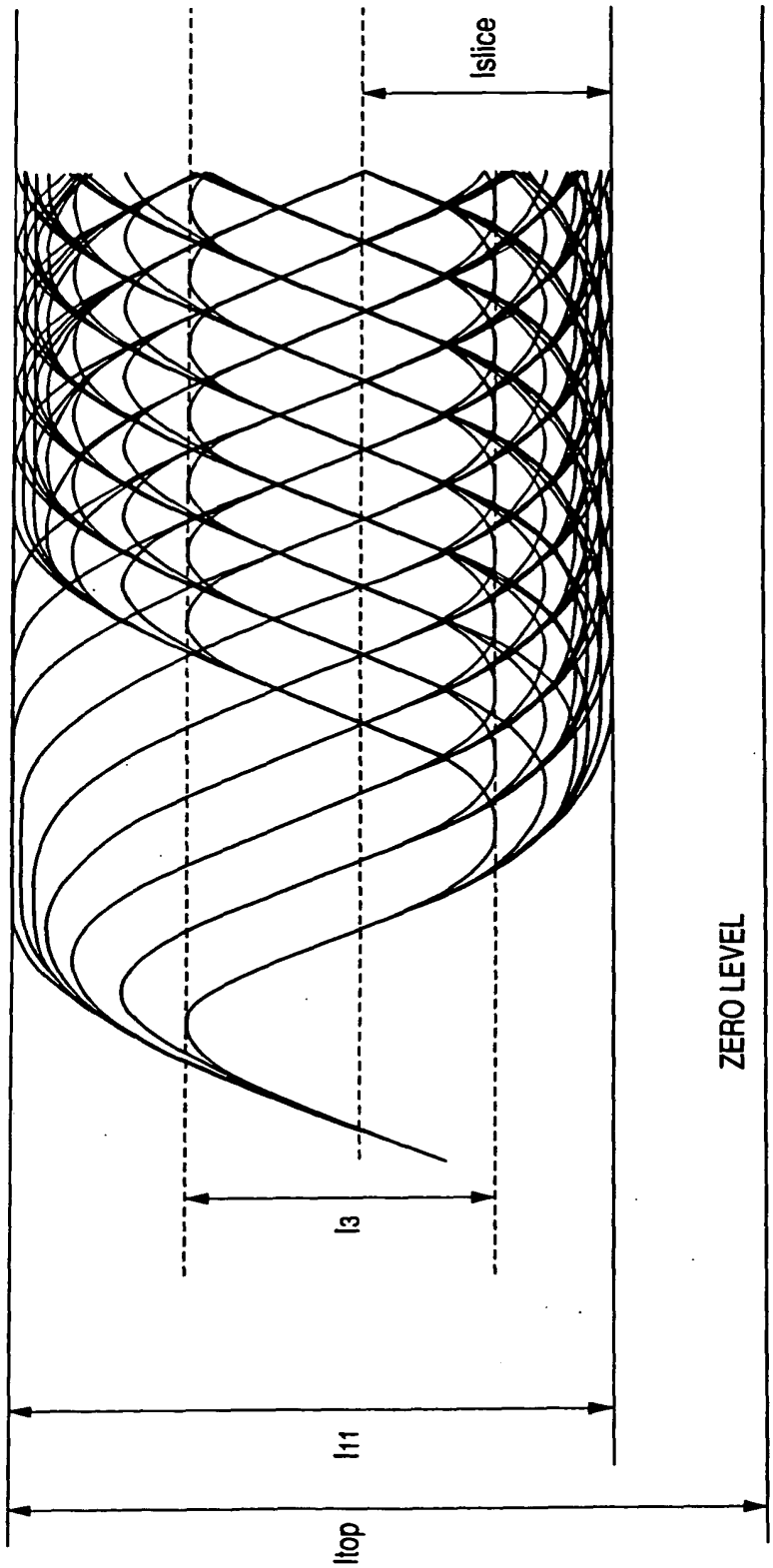


FIG. 6 (a)

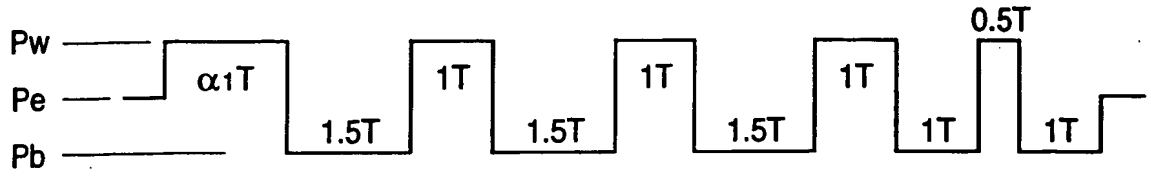



FIG. 6 (b)

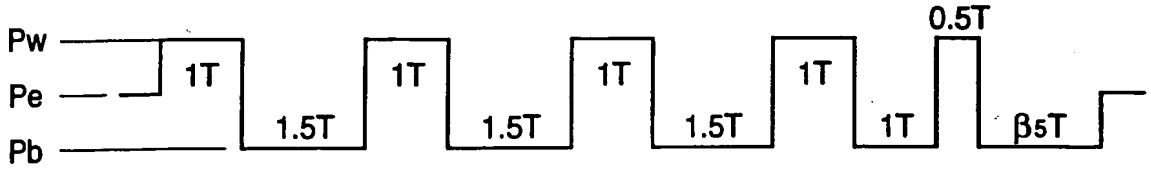



FIG. 6 (c)

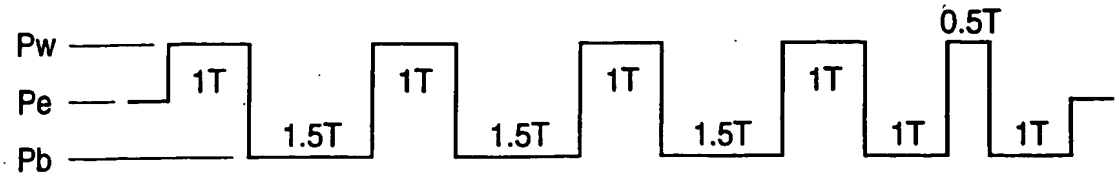


FIG. 7

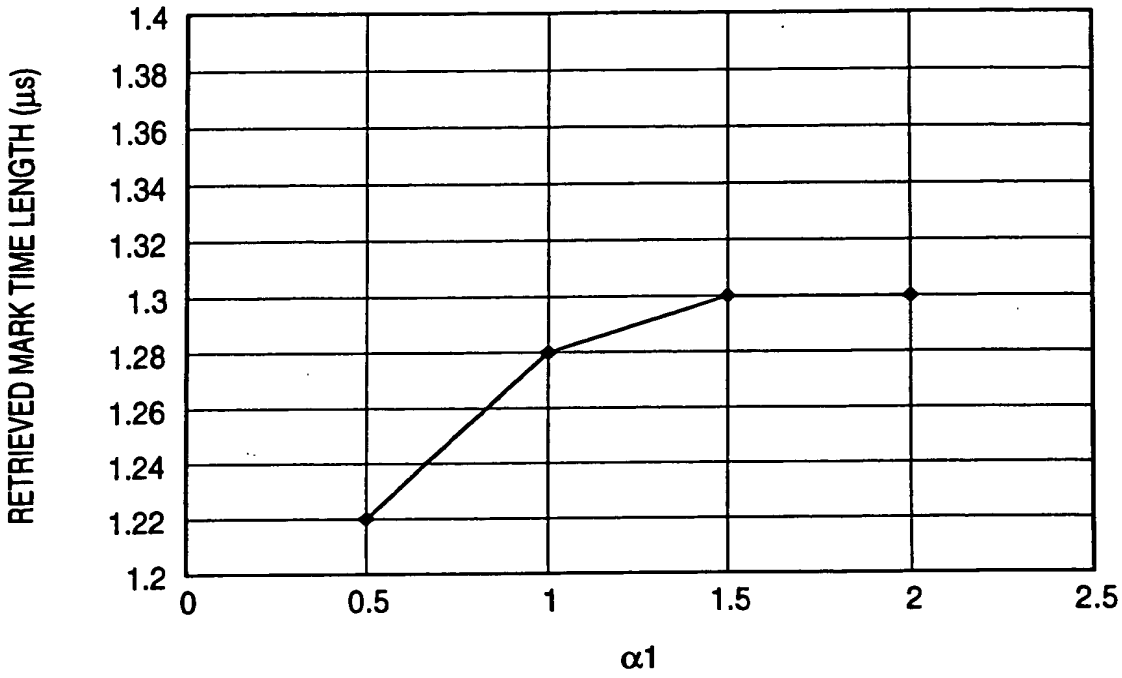

RETRIEVED MARK TIME LENGTH (μs)
1.4
1.38
1.36
1.34
1.32
1.3
1.28
1.26
1.24
1.22
1.2
0
0.5
1
1.5
2
2.5
α1

FIG. 8

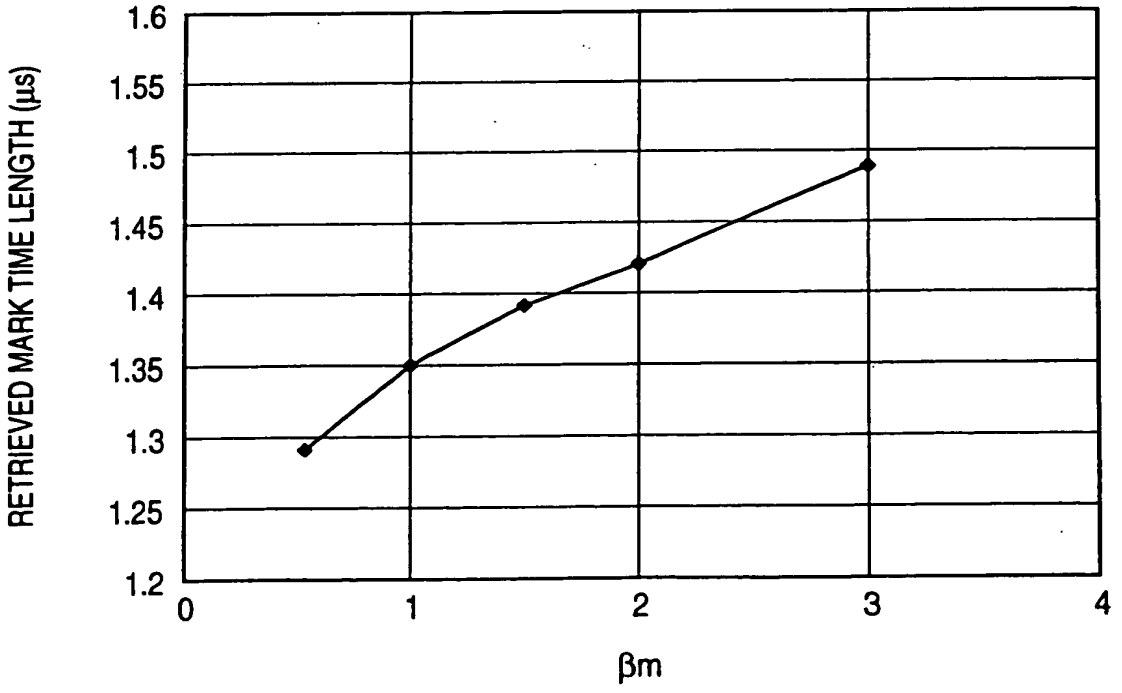

RETRIEVED MARK TIME LENGTH (μs)
1.6
1.55
1.5
1.45
1.4
1.35
1.3
1.25
1.2
0
1
2
3
4
βm

FIG. 9

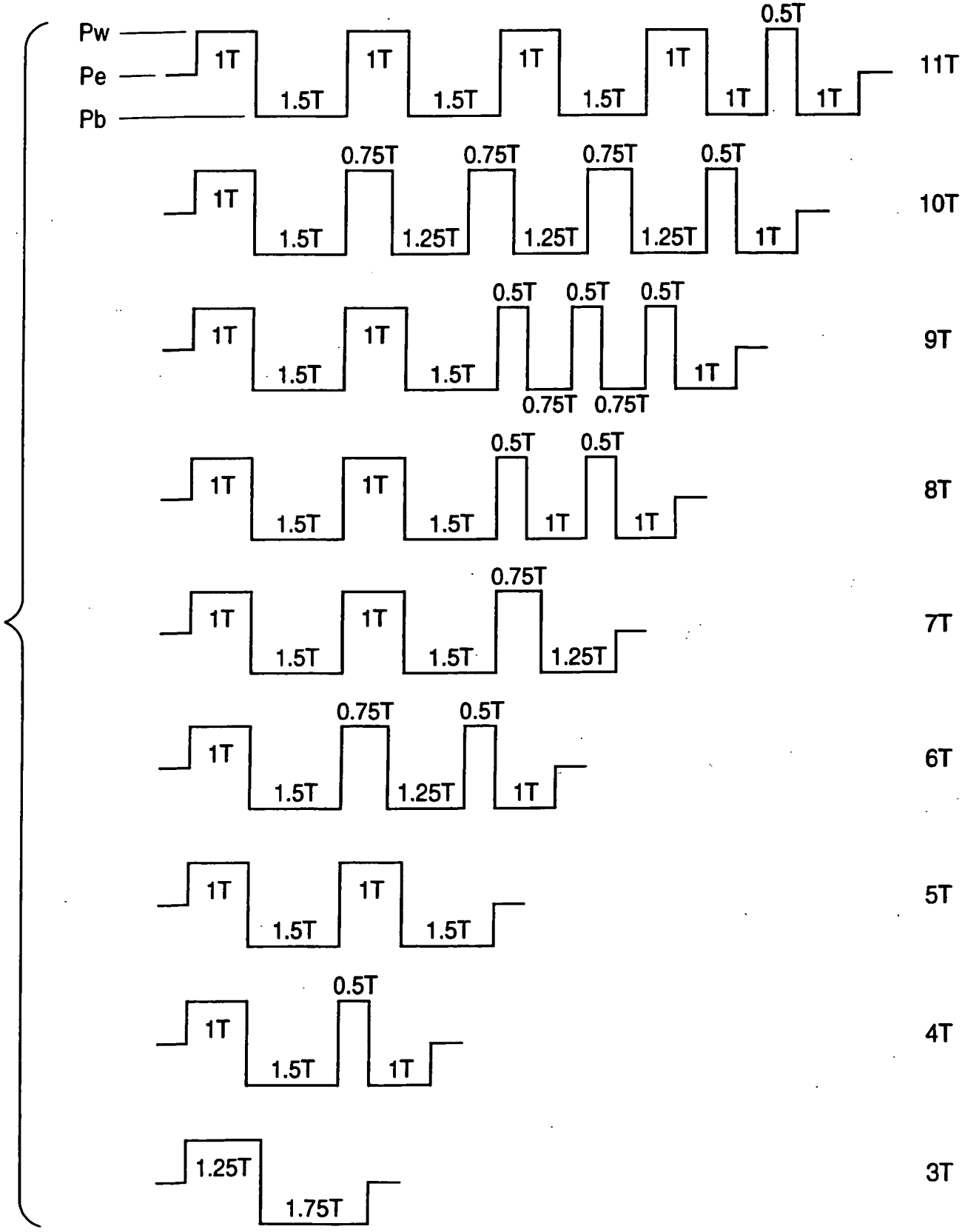
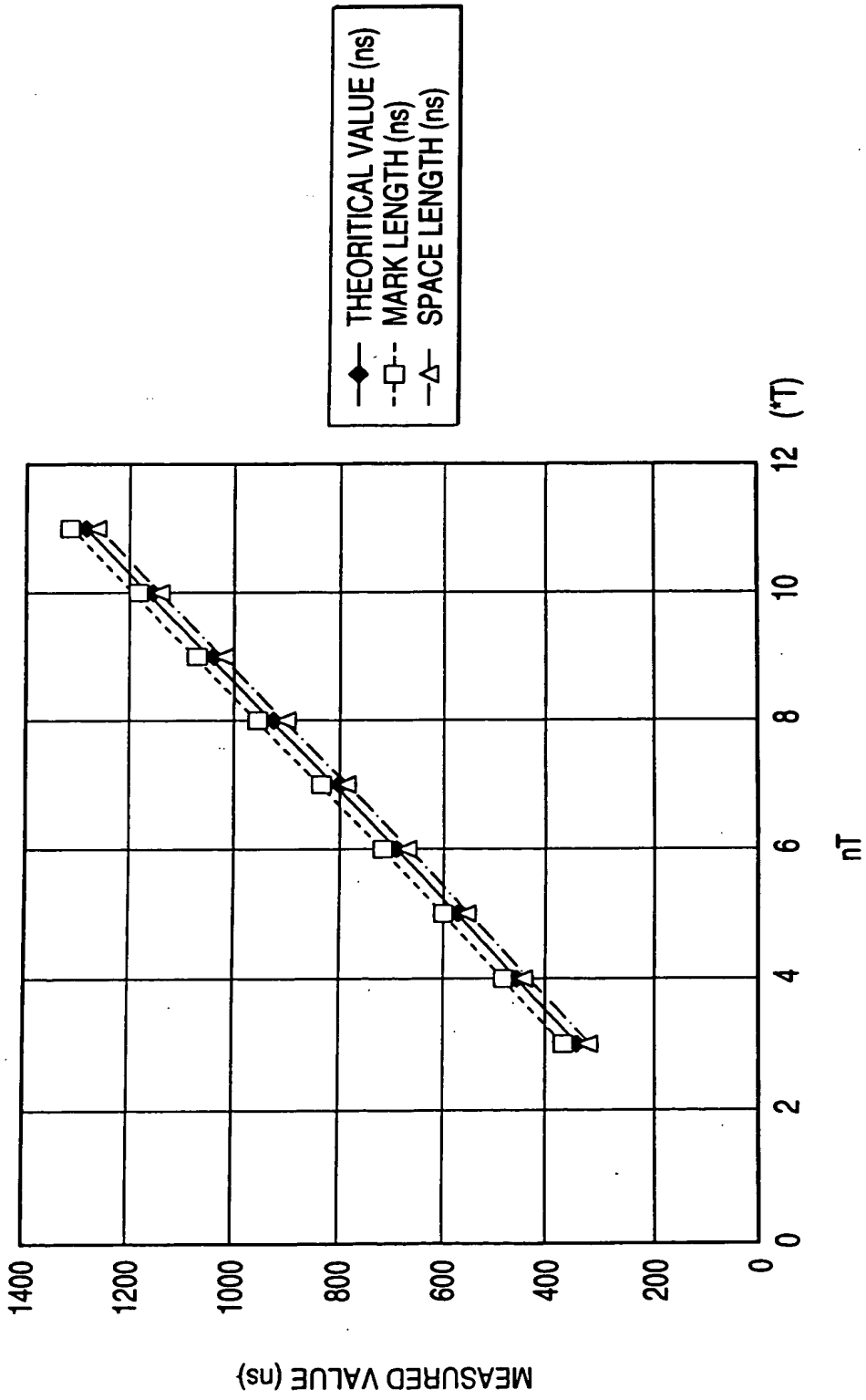

Pw
Pe
Pb
11T
1T 1.5T 1T 1.5T 1T 1.5T 1T 1T 0.5T 1T
10T
1T 1.5T 0.75T 1.25T 0.75T 1.25T 0.75T 1.25T 0.5T 1T
9T
1T 1.5T 1T 1.5T 0.5T 0.75T 0.5T 0.75T 0.5T 1T
8T
1T 1.5T 1T 1.5T 0.5T 1T 0.5T 1T
7T
1T 1.5T 1T 1.5T 0.75T 1.25T
6T
1T 1.5T 0.75T 1.25T 0.5T 1T
5T
1T 1.5T 1T 1.5T
4T
1T 1.5T 0.5T 1T
3T
1.25T 1.75T

FIG. 10


THEORITICAL VALUE (ns)
MARK LENGTH (ns)
SPACE LENGTH (ns)
MEASURED VALUE (ns)
1400
1200
1000
800
600
400
200
0
0
2
4
6
8
10
12
nT
(*T)

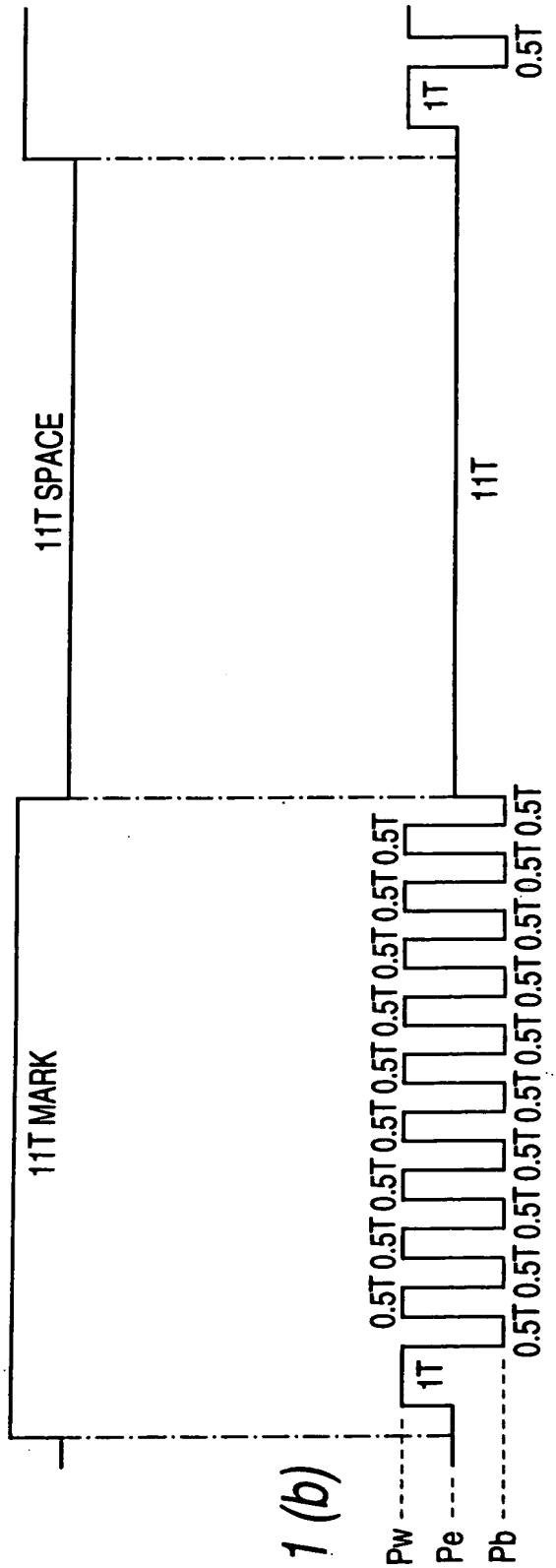



FIG. 11 (a)

FIG. 11 (b)

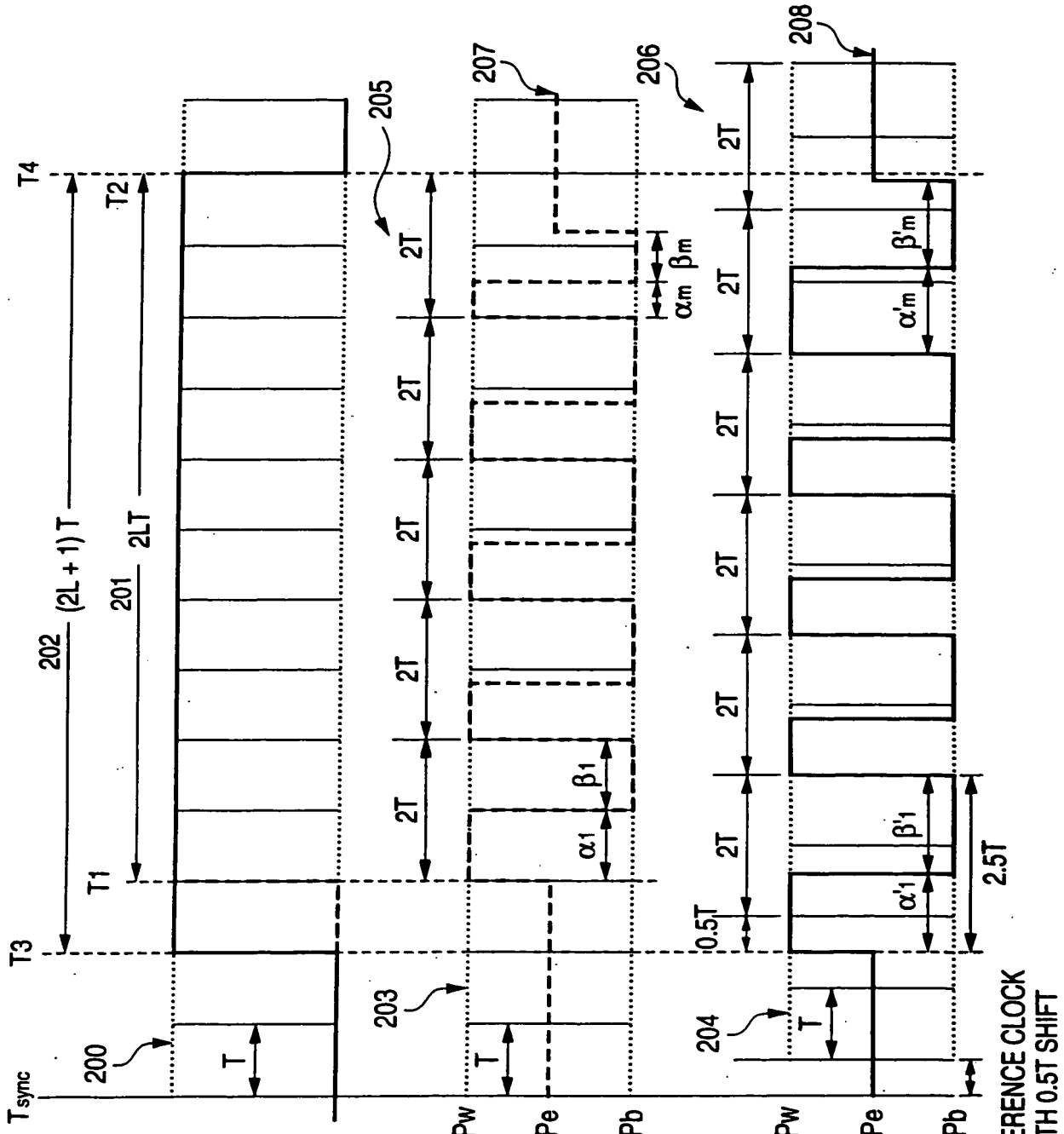



FIG. 12 (a)

FIG. 12 (b)

FIG. 12 (c)

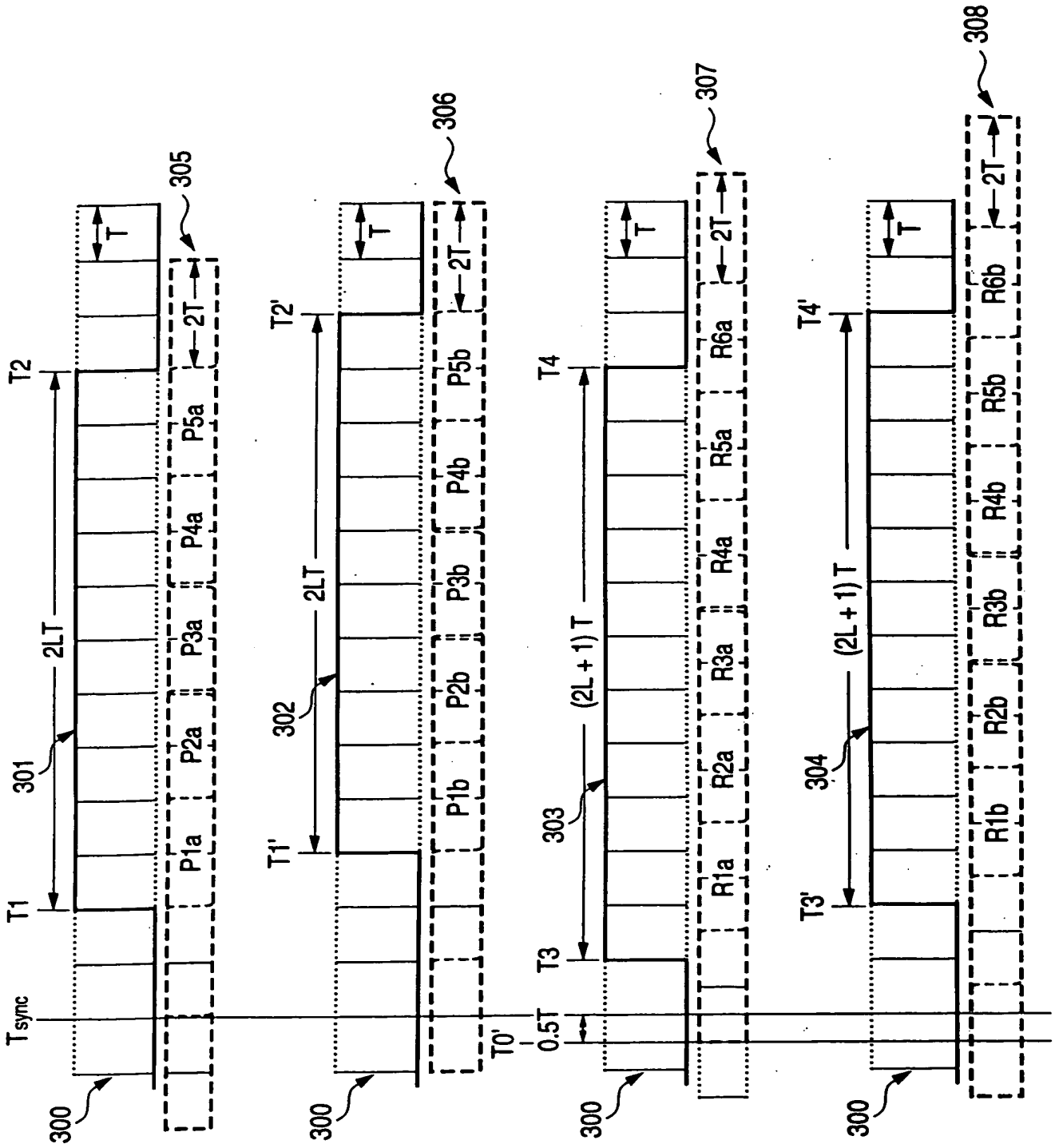



FIG. 13 (a)

FIG. 13 (b)

FIG. 13 (c)

FIG. 13 (d)

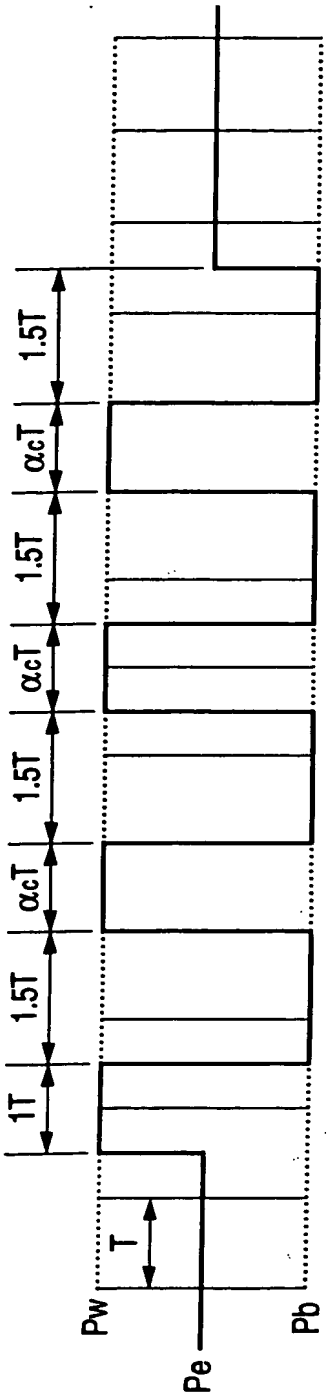



FIG. 14 (a)

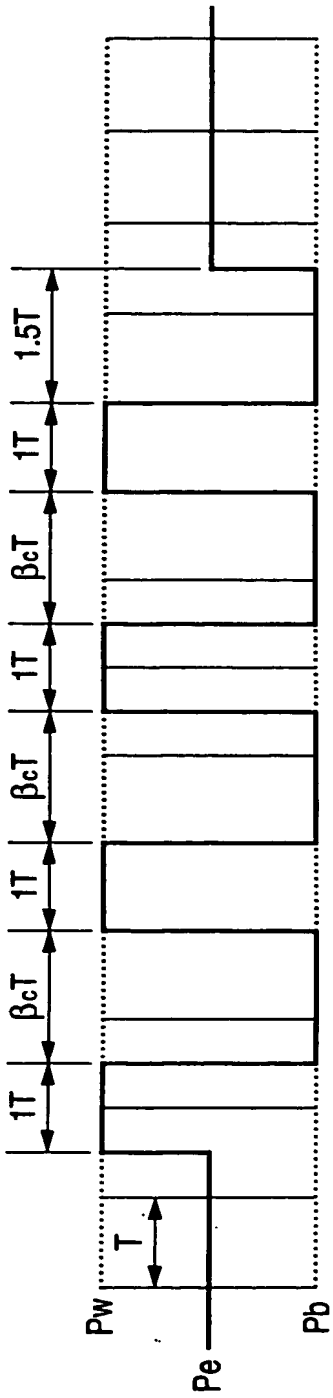



FIG. 14 (b)

FIG. 15 (a)

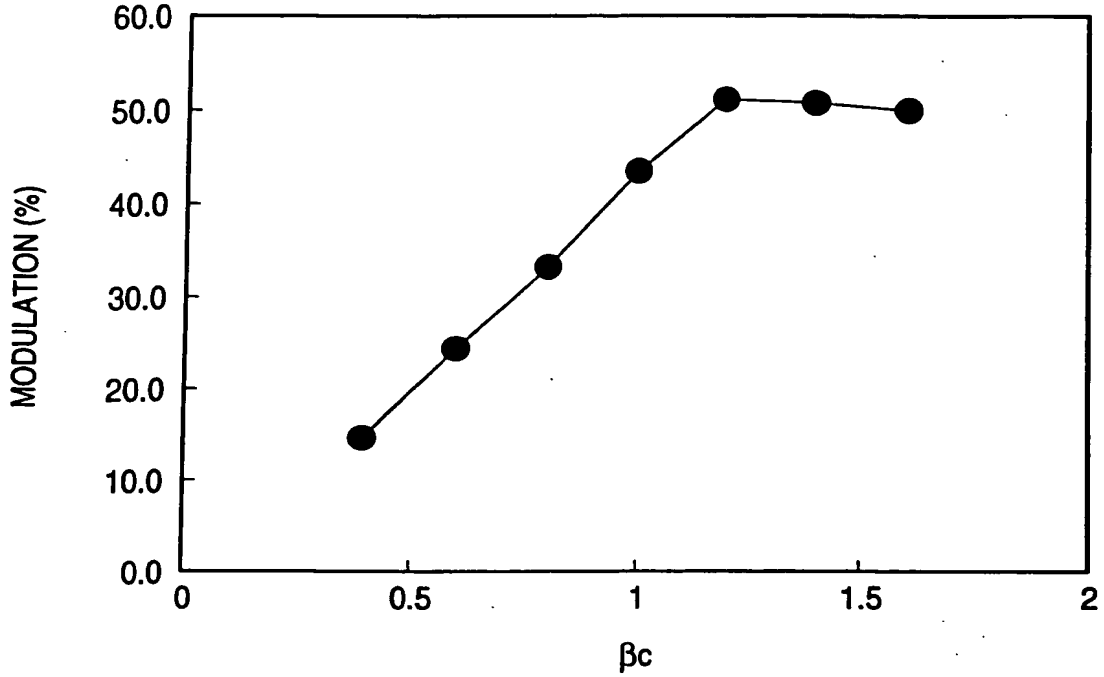
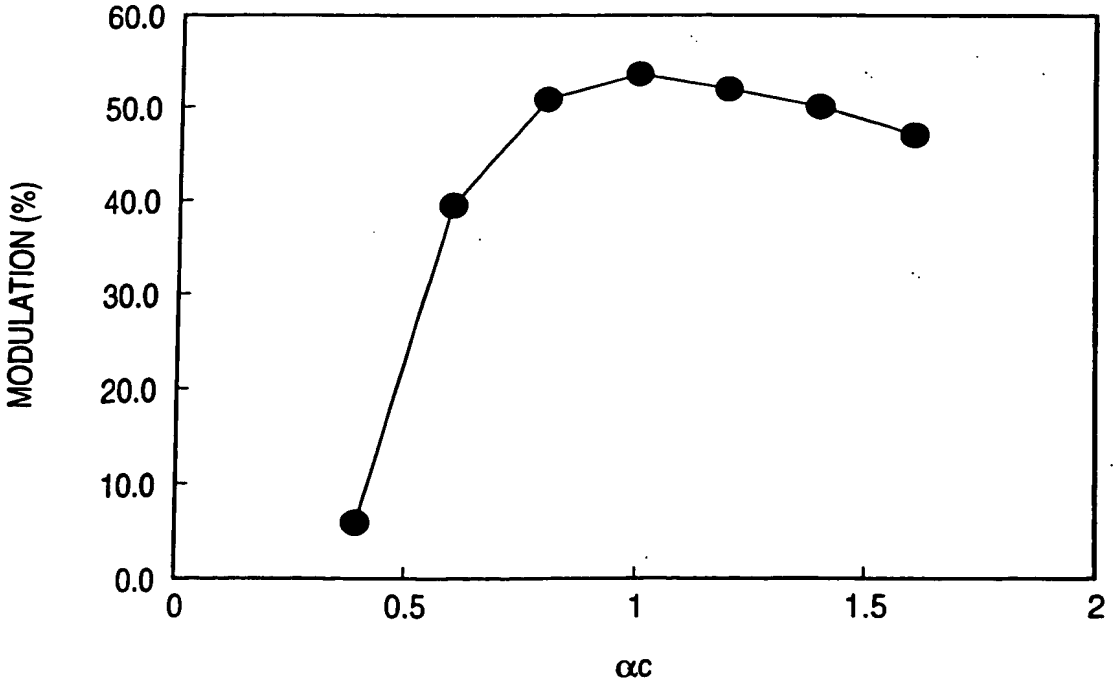



FIG. 15 (b)



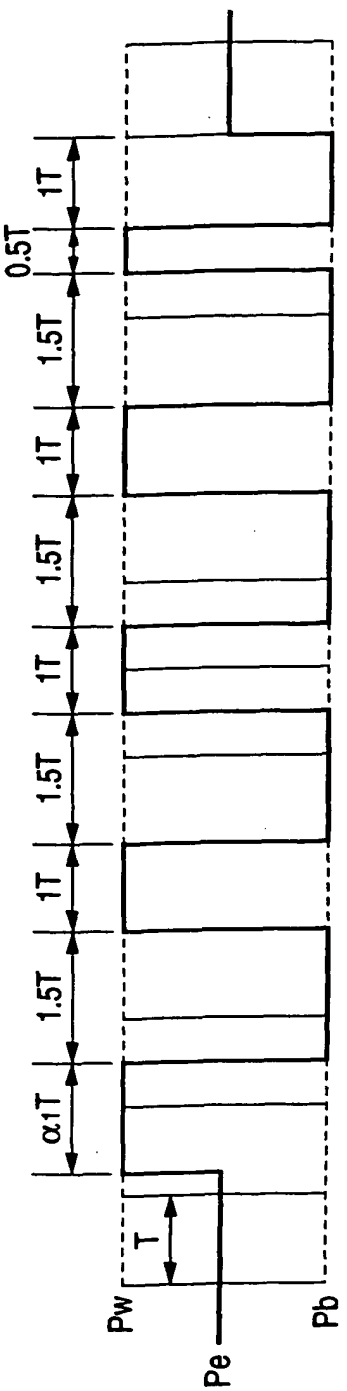



FIG. 16 (a)

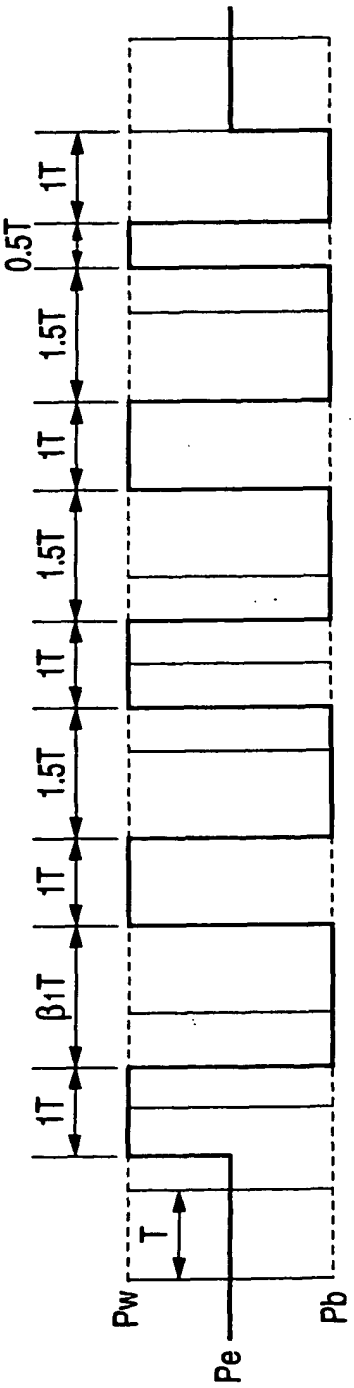



FIG. 16 (b)

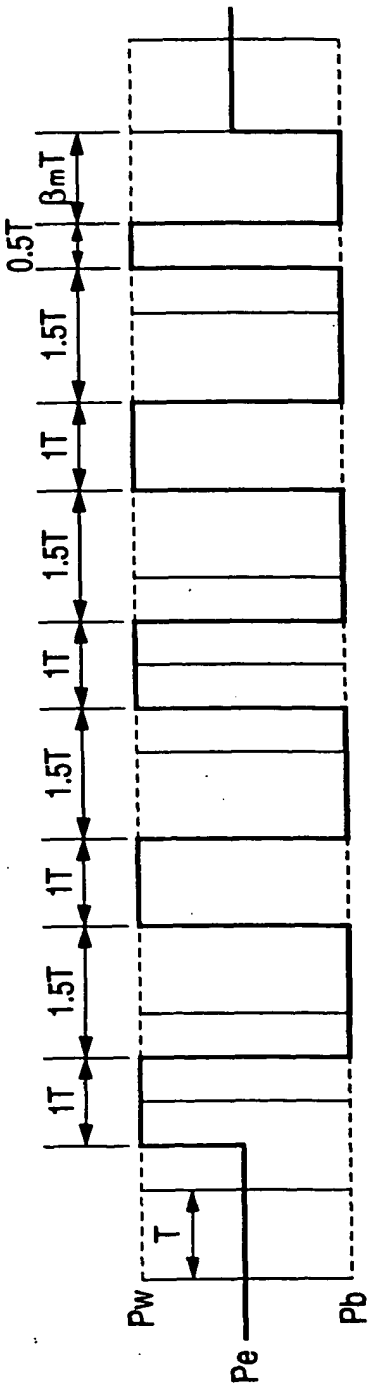



FIG. 16 (c)

FIG. 17 (a)

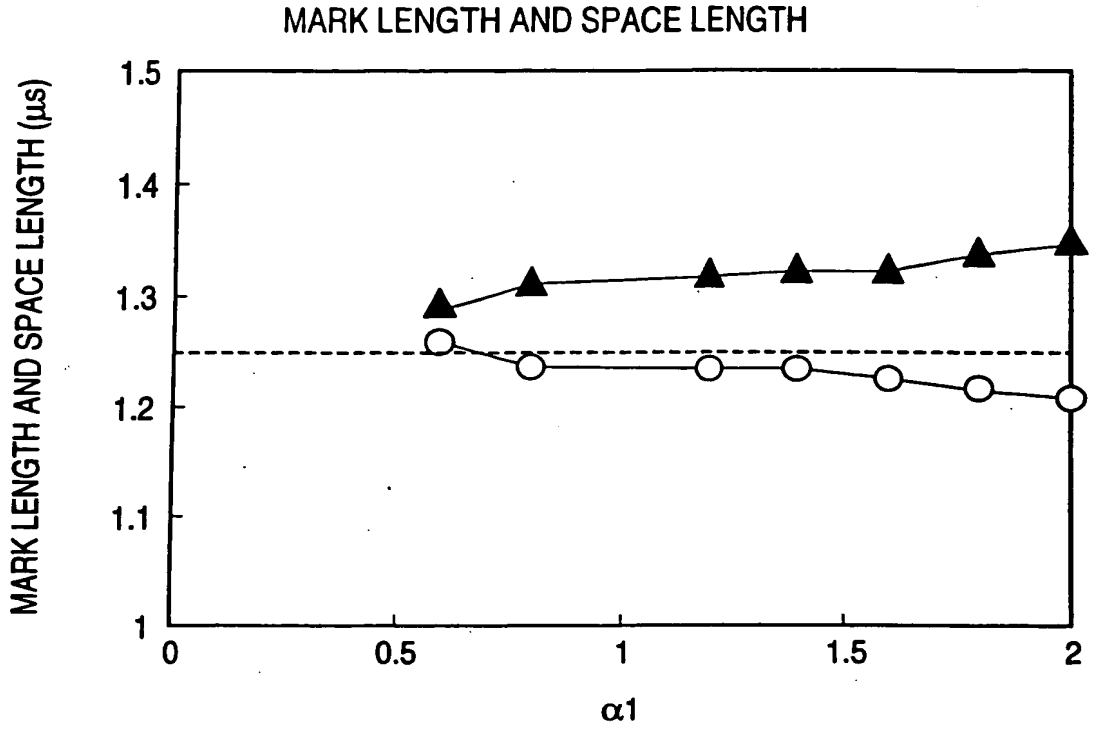



FIG. 17 (b)

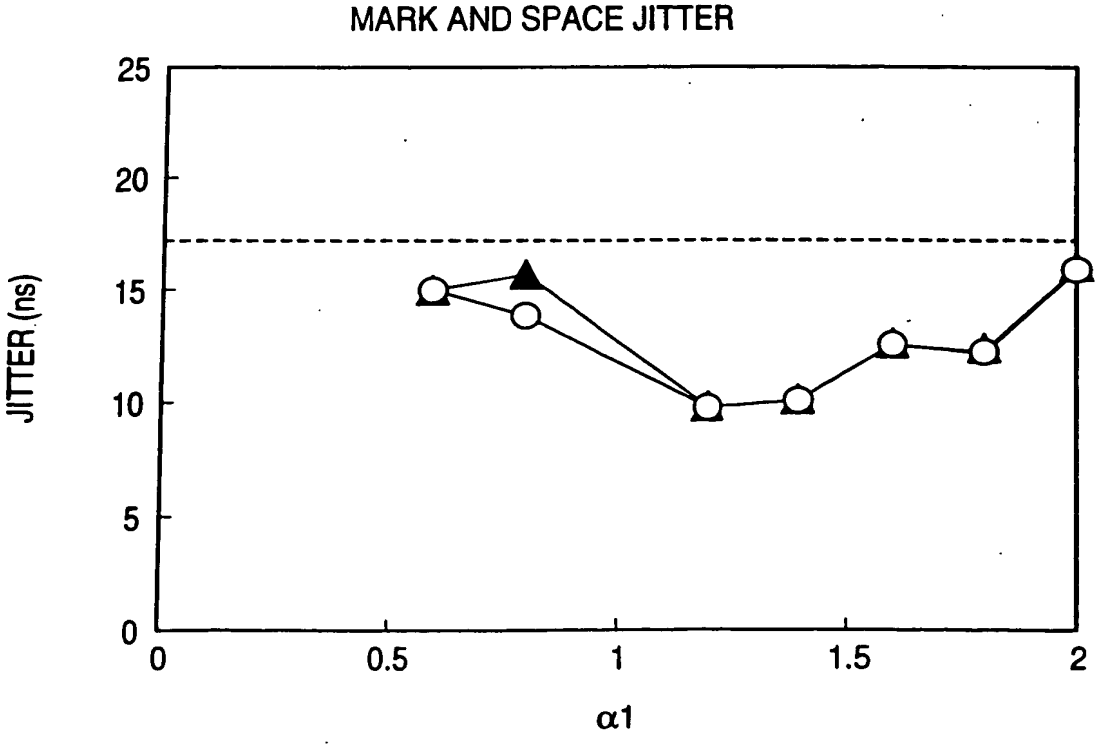


FIG. 18 (a)

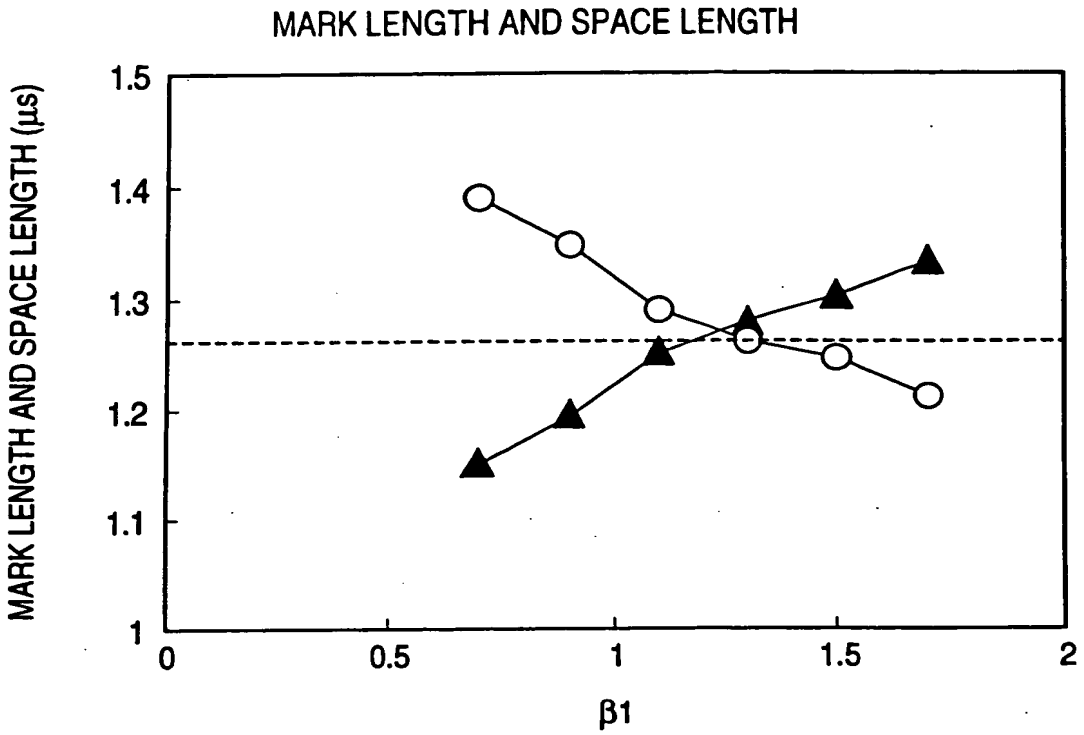



FIG. 18 (b)

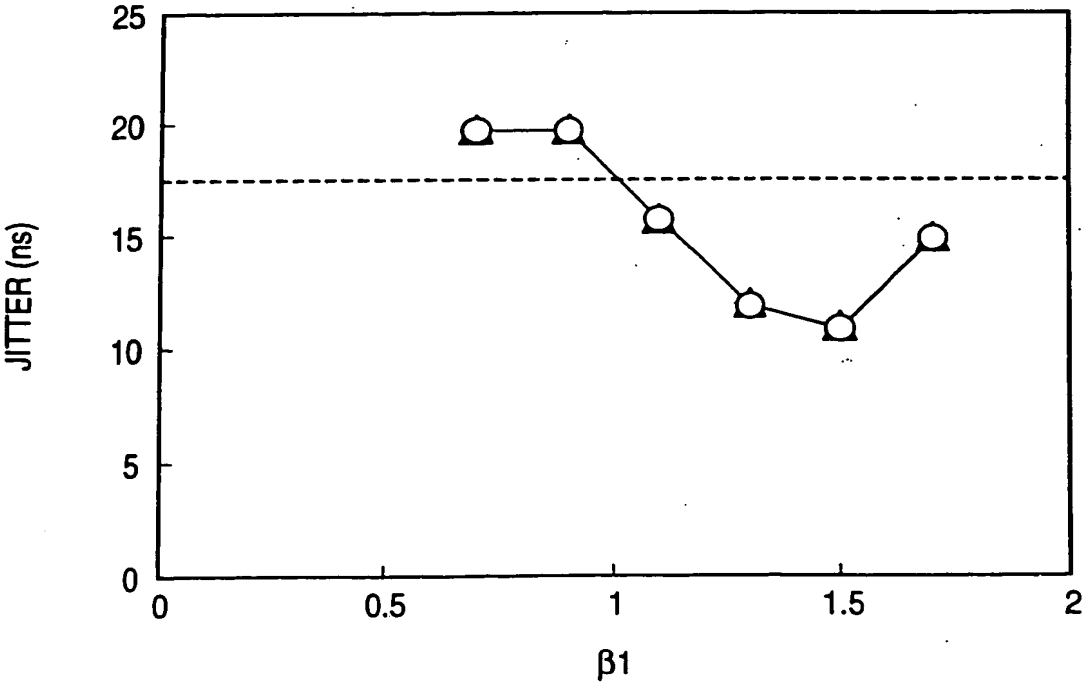


FIG. 19 (a)

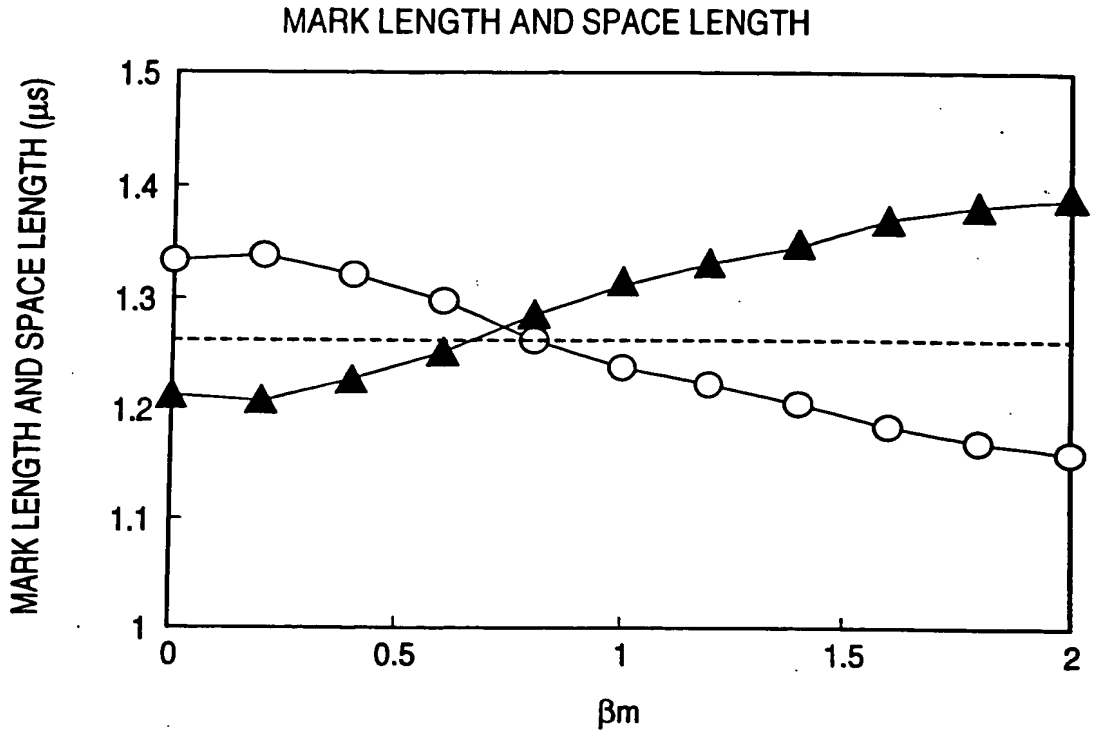



FIG. 19 (b)

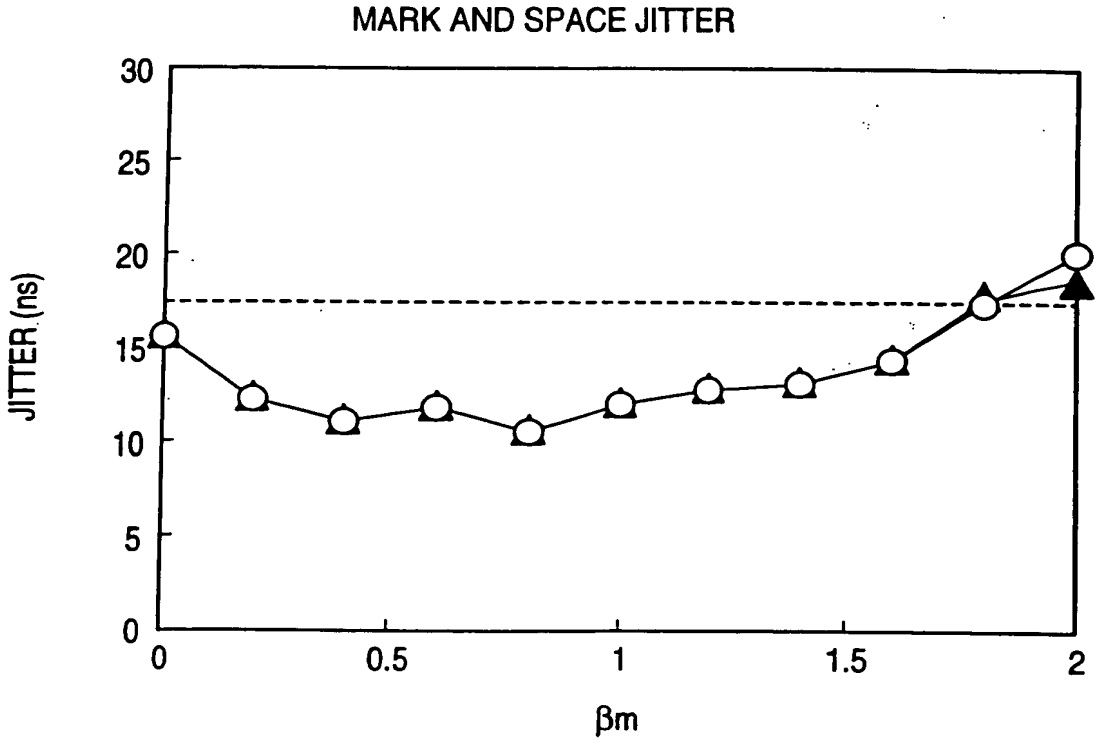


FIG. 20

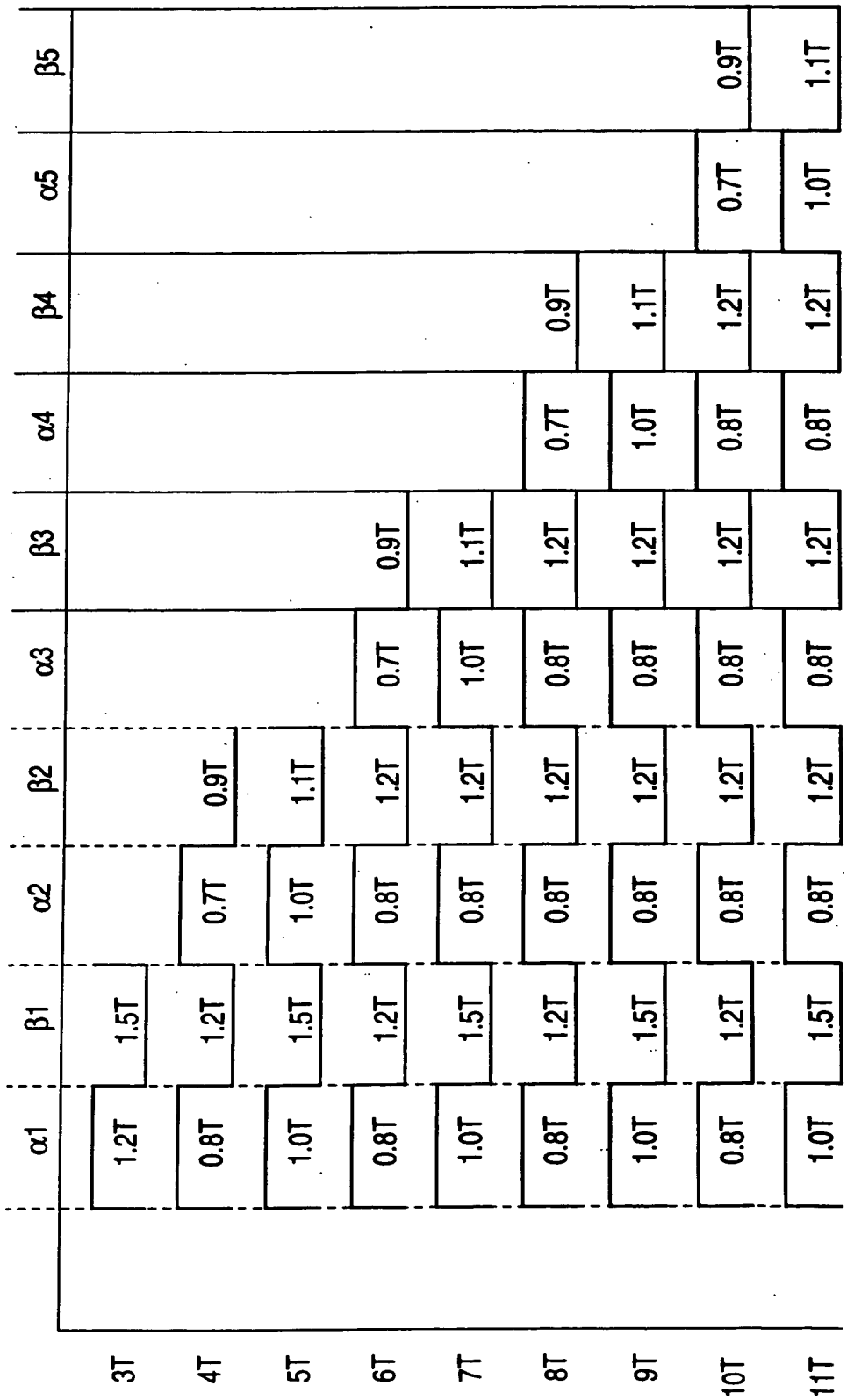

α1
β1
α2
β2
α3
β3
α4
β4
α5
β5
3T
4T
5T
6T
7T
8T
9T
10T
11T
1.2T
1.5T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T
0.7T
0.9T
1.0T
1.1T
0.8T
1.2T

FIG. 21 (a)

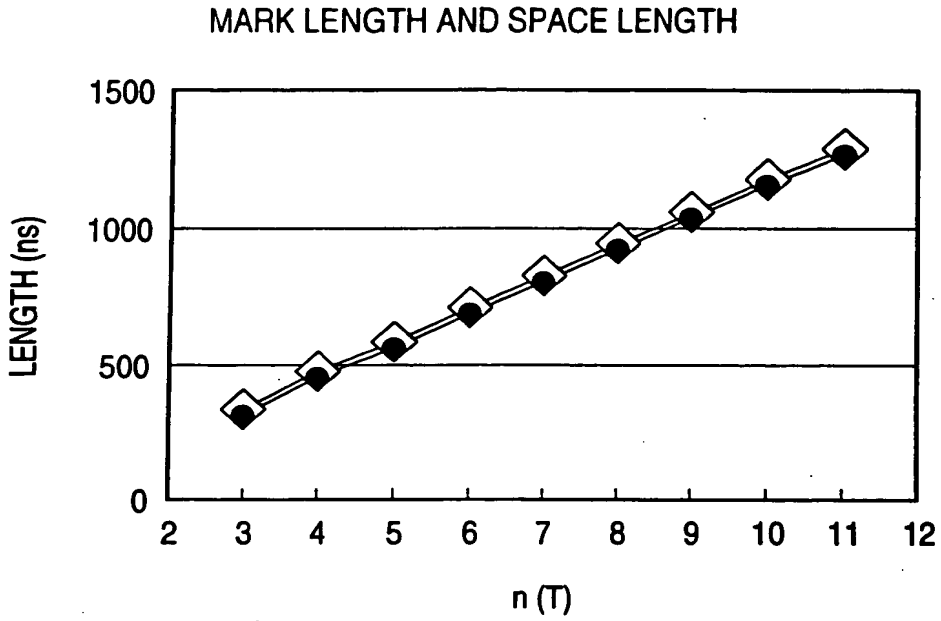



FIG. 21 (b)

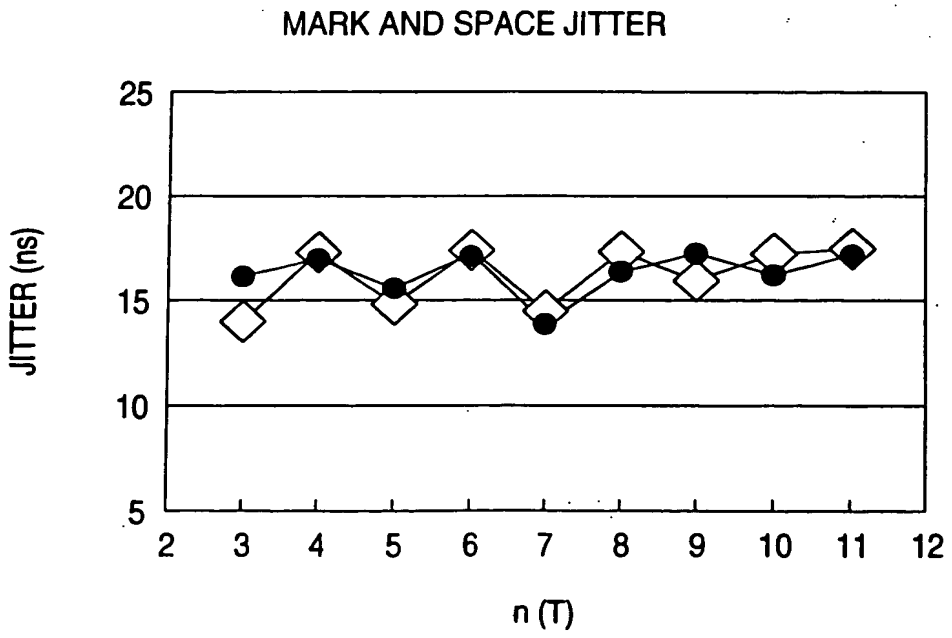


FIG. 22

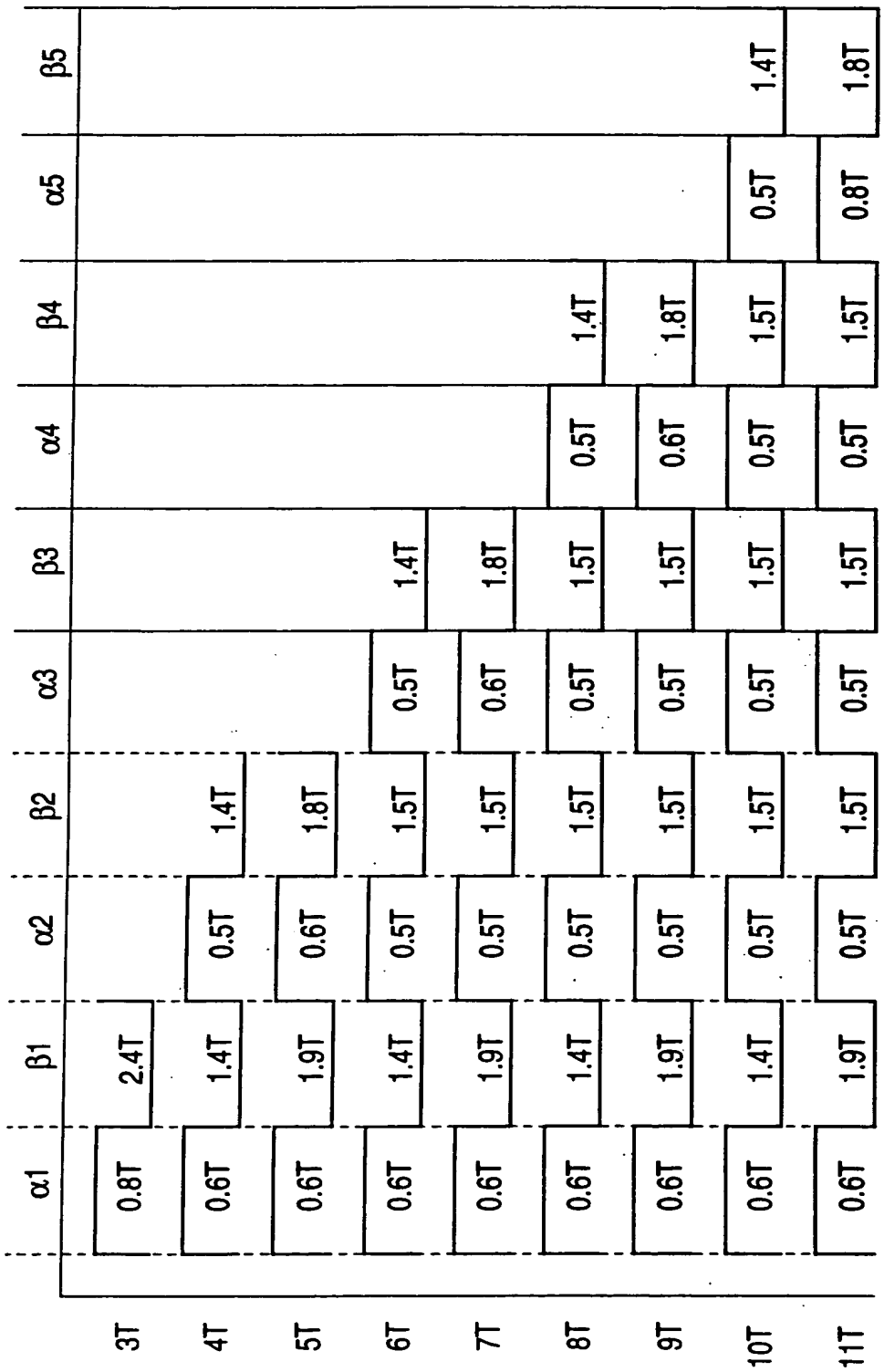

α1
β1
α2
β2
α3
β3
α4
β4
α5
β5
0.8T
2.4T
0.6T
1.4T
0.5T
1.4T
0.5T
1.4T
0.5T
1.4T
0.5T
1.4T
0.5T
1.4T
0.5T
1.4T
0.6T
1.9T
0.6T
1.9T
0.6T
1.8T
0.6T
1.8T
0.6T
1.8T
0.6T
1.8T
0.6T
1.9T
0.6T
1.9T
0.6T
1.5T
0.6T
1.5T
0.6T
1.5T
0.6T
1.5T
0.6T
1.4T
0.6T
1.4T
0.6T
1.4

FIG. 23 (a)

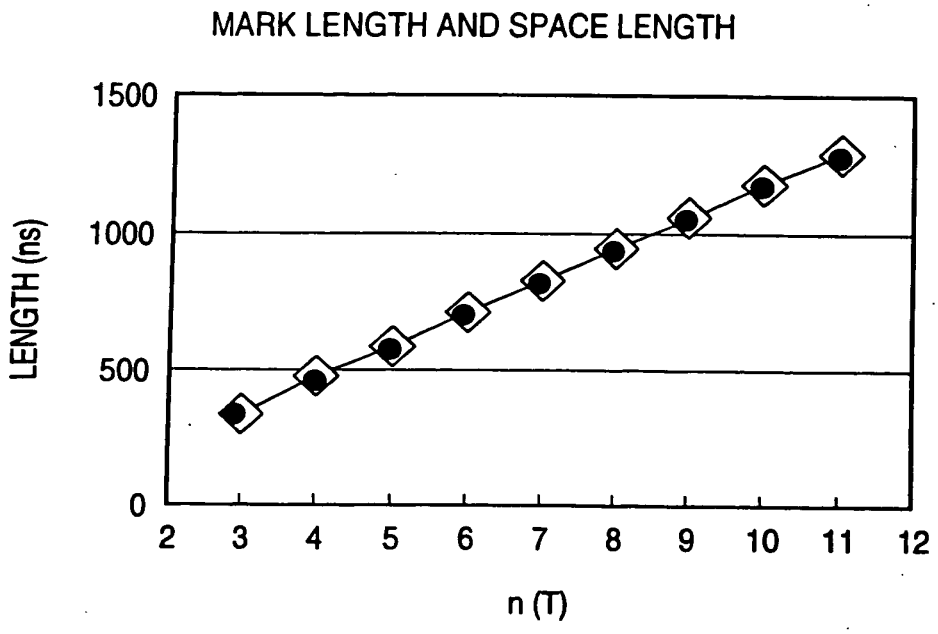
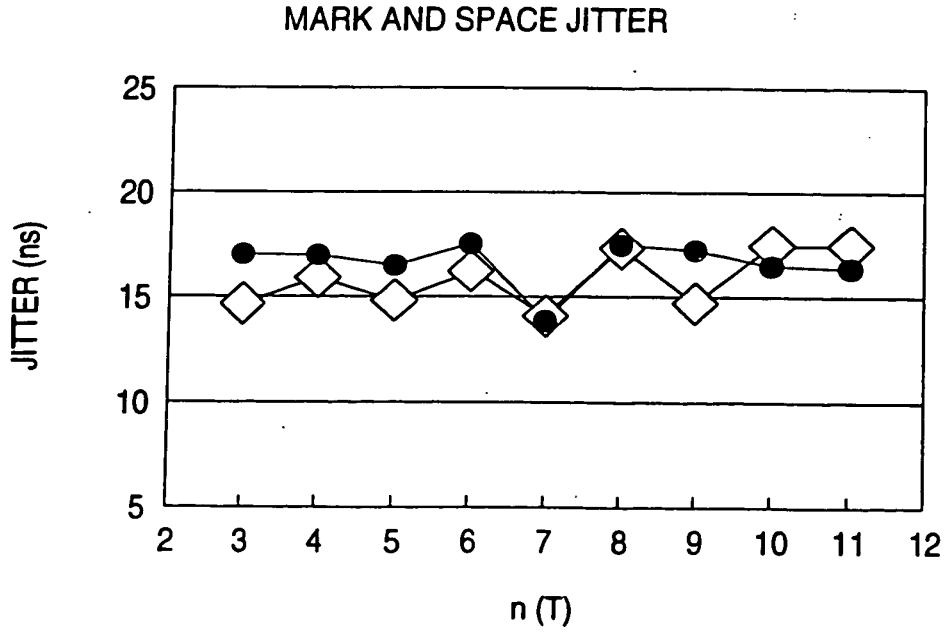



FIG. 23 (b)



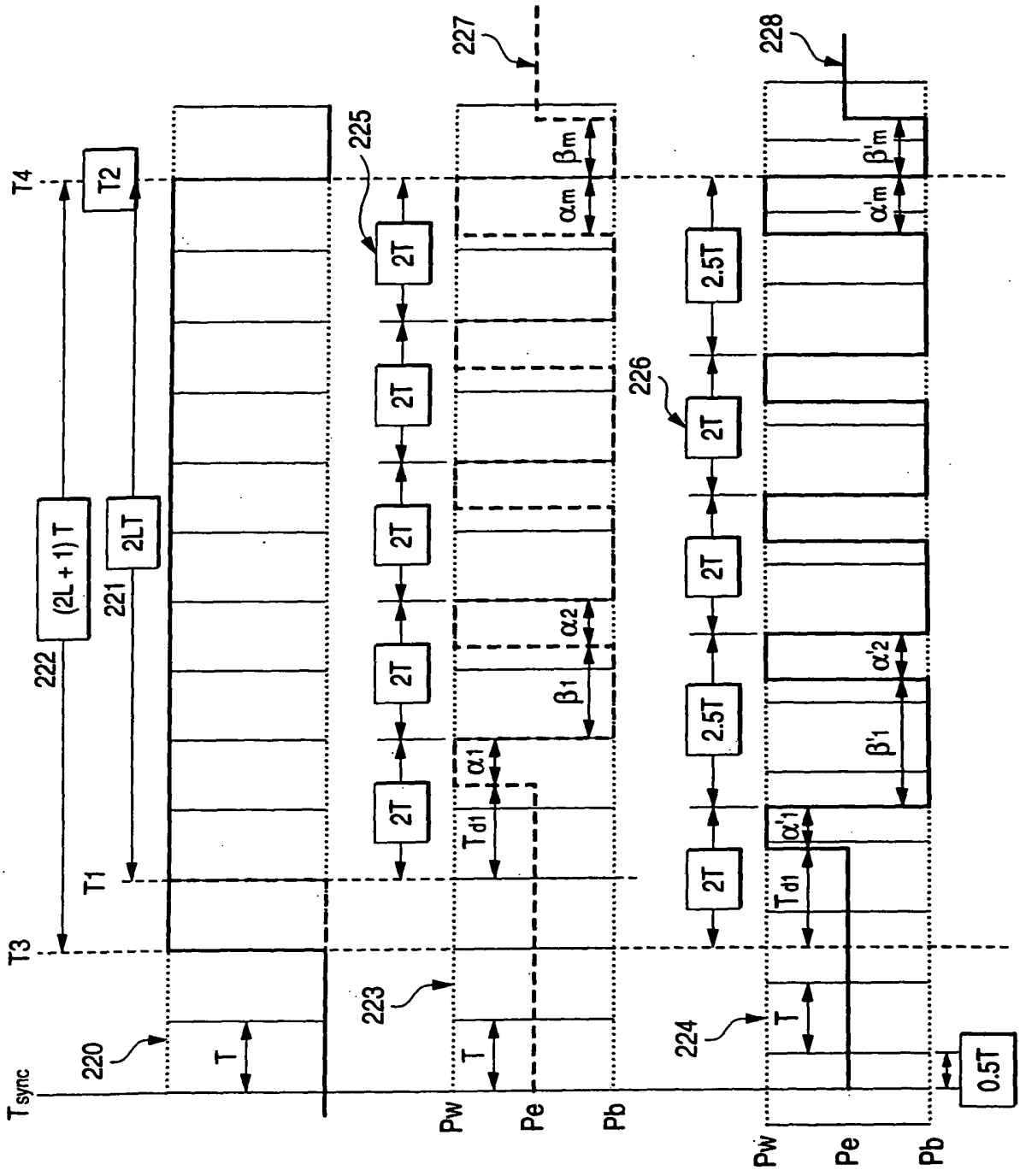



FIG. 24 (a)

FIG. 24 (b)

FIG. 24 (c)

FIG. 25 (a)

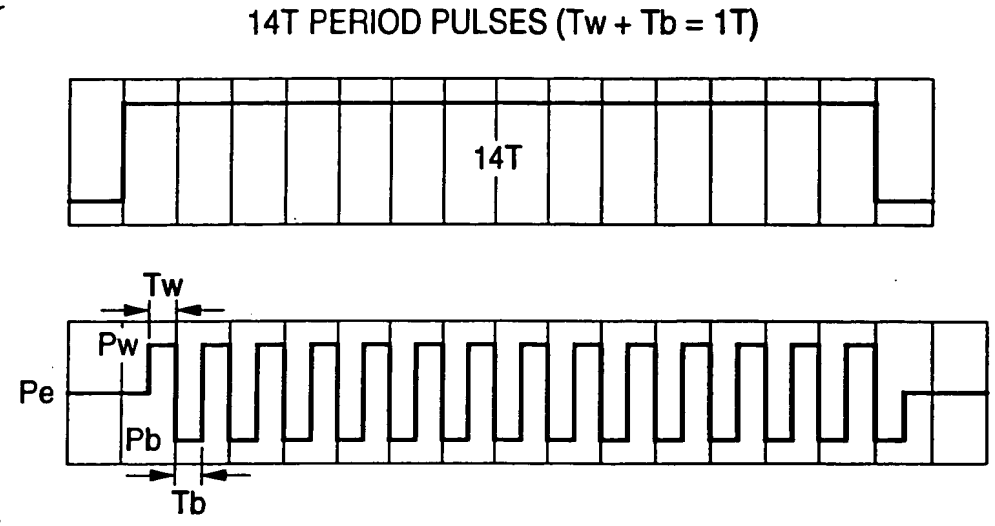



FIG. 25 (b)

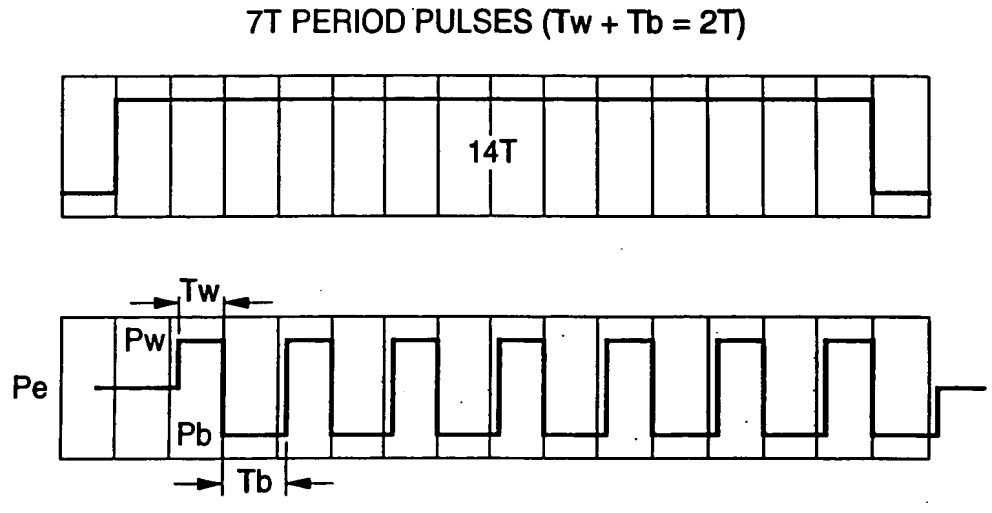



FIG. 25 (c)

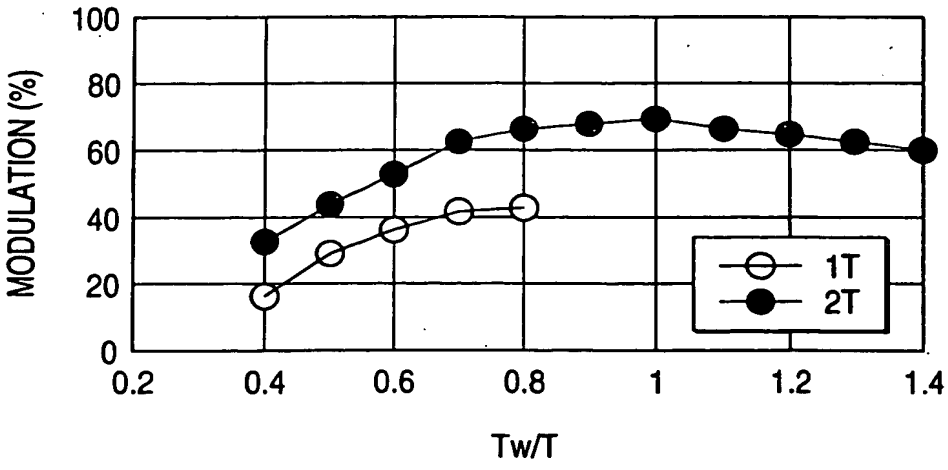


FIG. 26

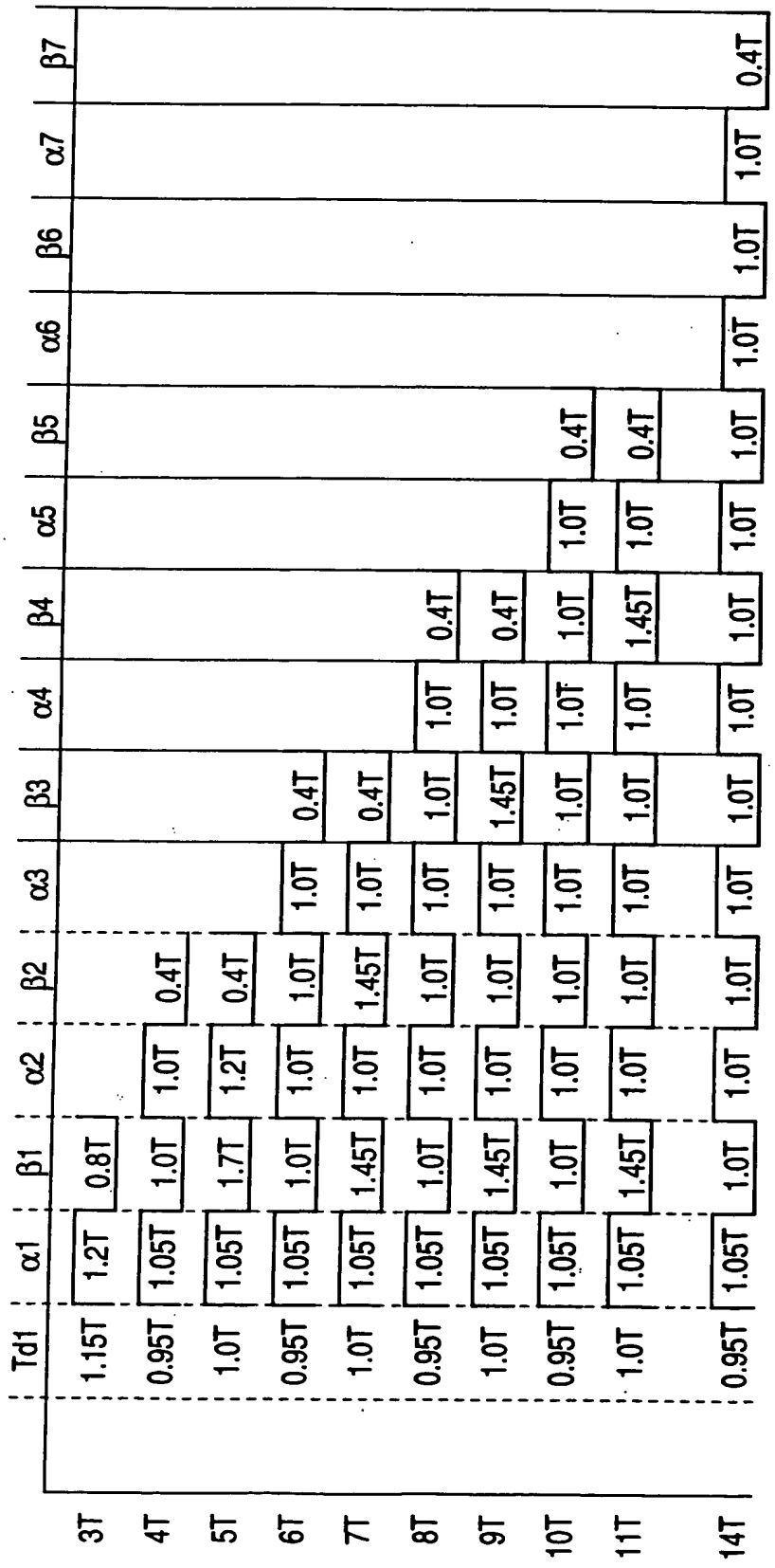

Td1
α1
β1
α2
β2
α3
β3
α4
β4
α5
β5
α6
β6
α7
β7
3T
4T
5T
6T
7T
8T
9T
10T
11T
14T
1.15T
1.2T
0.8T
0.95T
1.05T
1.0T
1.0T
1.7T
1.2T
0.4T
0.95T
1.05T
1.0T
1.0T
1.0T
0.4T
1.0T
1.05T
1.45T
1.45T
1.0T
0.4T
0.95T
1.05T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
0.4T
1.0T
1.05T
1.45T
1.45T
1.0T
0.4T
1.0T
1.05T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
0.4T
1.0T
1.05T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0T
1.0

FIG. 27 (a)

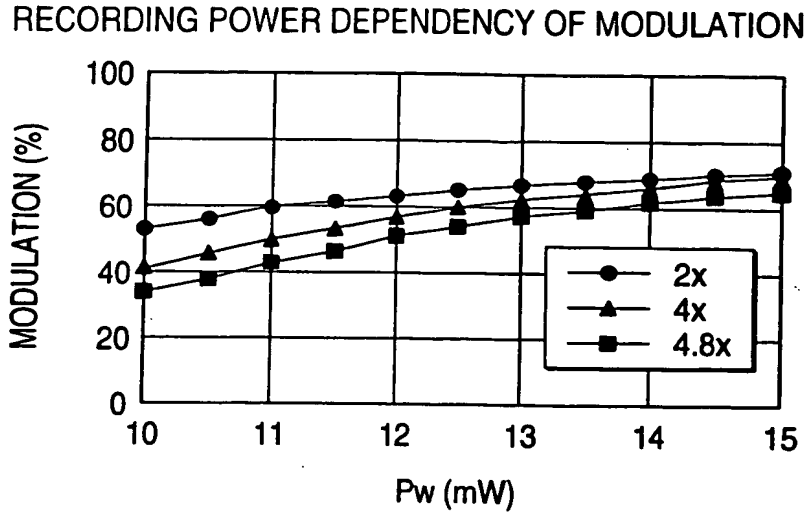



FIG. 27 (b)

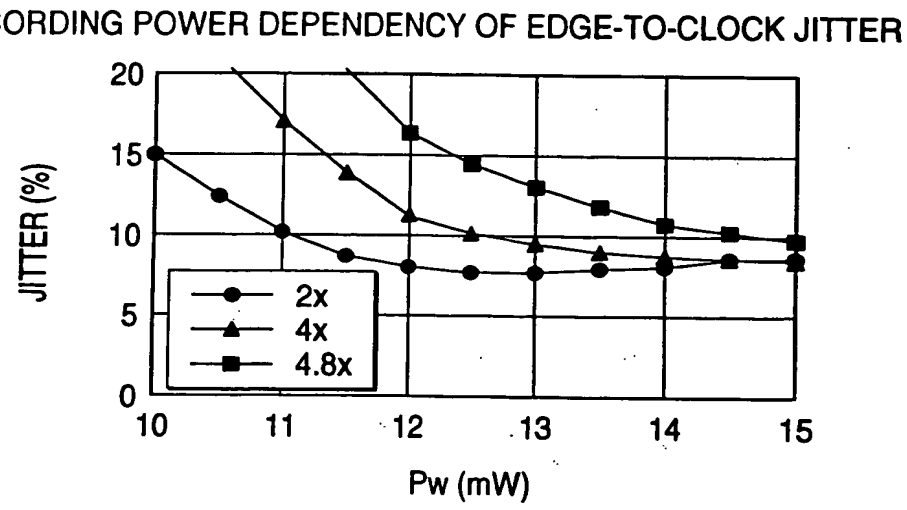



FIG. 27 (c)

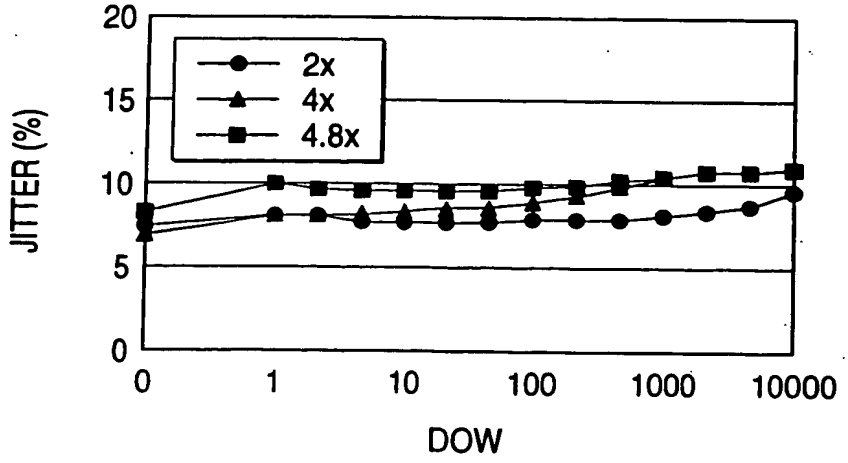
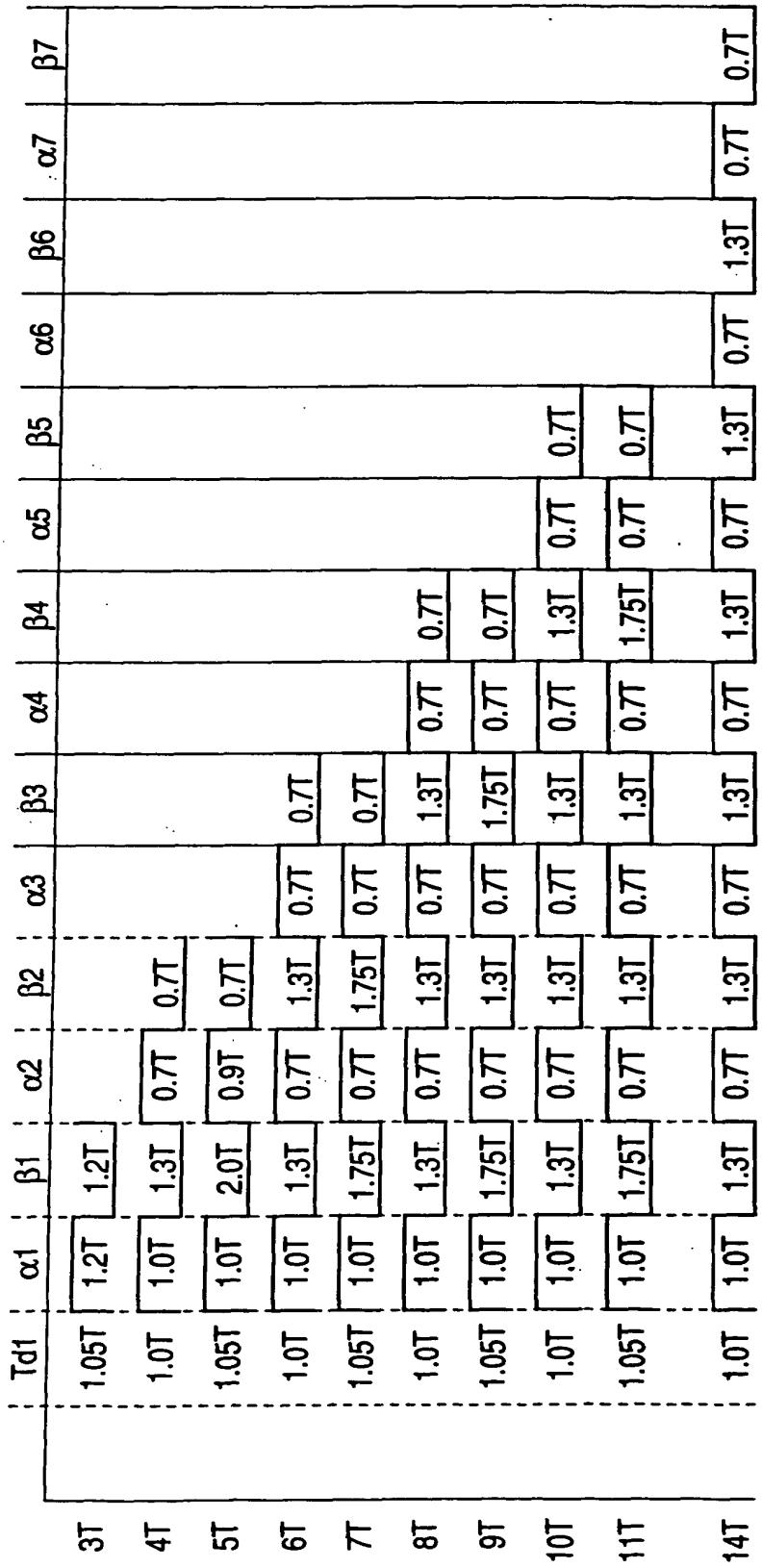


FIG. 28


Td1
α1
β1
α2
β2
α3
β3
α4
β4
α5
β5
α6
β6
α7
β7
3T
4T
5T
6T
7T
8T
9T
10T
11T
14T
1.05T 1.2T 1.2T
1.0T 1.0T 1.3T 0.7T
1.05T 1.0T 2.0T 0.9T 0.7T
1.0T 1.0T 1.3T 0.7T 1.3T 0.7T
1.05T 1.0T 1.75T 0.7T 1.75T 0.7T 0.7T
1.0T 1.0T 1.3T 0.7T 1.3T 0.7T 1.3T 0.7T
1.05T 1.0T 1.75T 0.7T 1.3T 0.7T 1.75T 0.7T 0.7T
1.0T 1.0T 1.3T 0.7T 1.3T 0.7T 1.3T 0.7T 1.3T 0.7T
1.05T 1.0T 1.75T 0.7T 1.3T 0.7T 1.3T 0.7T 1.75T 0.7T 0.7T
1.0T 1.0T 1.3T 0.7T 1.3T 0.7T 1.3T 0.7T 1.3T 0.7T 1.3T 0.7T
0.7T
0.7T 1.3T
0.7T 0.7T
1.3T 0.7T
0.7T